

AMENDMENT TO THE CLAIMS

1.(Currently Amended) A headset, comprising:  
a head mount; and  
an audio microphone mechanically connected to the head mount; and  
an in-ear transducer, configured to generate an electrical signal based on an input indicative of speech, and positioned to be located inside a user's ear and mechanically connected to the head mount; and  
at least one earphone speaker mechanically connected to the head mount.

2. Canceled.

3.(Currently Amended) The headset of claim 1 wherein the transducer comprises an infrared sensor and a microphone.

4. Canceled.

5. Canceled.

6. Canceled.

7. Canceled.

8. Canceled.

9. Canceled.

10. (Original) The headset of claim 1 wherein the transducer is rigidly connected to the head mount.

11. (Original) The headset of claim 10 wherein the audio microphone is rigidly connected to the head mount.

12. (Original) A speech detection system, comprising:

an audio microphone outputting a microphone signal based on an audio input;  
a speech sensor configured to sense movement of a user's face and output a sensor signal indicative of the movement; and  
a speech detector component configured to receive the sensor signal and output a speech detection signal indicative of whether the user is speaking based on the sensor signal; and to control power to a speech recognizer based on the speech detection signal.

13. (Original) The speech detection system of claim 12 wherein the speech detector component is configured to receive the microphone signal and provide the speech detection signal based on the sensor signal and the microphone signal.

14. (Original) The speech detection system of claim 12 wherein the speech sensor comprises a radiation sensor configured to sense radiation reflected from the user's face.

15. (Original) The speech detection system of claim 14 wherein the radiation sensor comprises an infrared sensor.

16. (Original) The speech detection system of claim 14 wherein the radiation sensor comprises a charge coupled device.

17. (Original) The speech detection system of claim 14 wherein the speech detector component is configured to detect a baseline value of a signal characteristic of the sensor signal.

18. (Original) The speech detection system of claim 17 wherein the speech detector component is configured to output the speech detection signal based on a value of the signal characteristic during an observation time period relative to the baseline value.

19. (Original) The speech detection system of claim 18 wherein the speech detector component is configured to intermittently re-estimate the baseline value of the signal characteristic.

20. (Original) The speech detection system of claim 12 wherein the audio microphone and the speech sensor are mounted to a headset.

21.(Currently Amended) A method of detecting whether a user is speaking, comprising:  
providing a sensor signal indicative of sensed radiation reflected from the user's face; and  
detecting whether the user is speaking based on the sensor signal; and  
controlling power to a speech recognizer based on whether the user is speaking.

22. (Original) The method of claim 21 wherein providing a sensor signal comprises:  
directing infrared radiation on the user's face; and  
detecting infrared radiation reflected from the user's face.

23. (Original) The method of claim 22 wherein providing a sensor signal comprises:  
generating the sensor signal as a radiation detection signal indicative of a measure of the detected infrared radiation.

24. (Original) The method of claim 23 wherein detecting whether the user is speaking comprises:  
intermittently calculating a baseline sensor signal value.

25. (Original) The method of claim 24 wherein detecting whether the user is speaking comprises:  
comparing the sensor signal to the baseline sensor signal value.

26. (Original) The method of claim 25 and further comprising:

providing a microphone signal indicative of a sensed audio speech signal.

27.(Original) The method of claim 26 wherein detecting whether the user is speaking comprises: detecting whether the user is speaking based on the sensor signal and the microphone signal.

28. (Original) The method of claim 21 wherein providing a sensor signal comprises:  
sensing an image of the user's face; and  
providing the sensor signal as an image signal indicative of the sensed image.

29.(Currently Amended) A speech recognition system, comprising:  
a speech detector system comprising:  
an audio microphone outputting a microphone signal based on an audio input;  
an in-ear speech sensor configured to sense movement of vibration within a user's face/ear  
and output a sensor signal indicative of the movement/vibration; and  
a speech detector component configured to receive the sensor signal and output a speech  
detection signal indicative of whether the user is speaking based on the sensor  
signal;  
a background speech removal component providing a modified speech signal based on  
the speech detection signal and the microphone signal; and  
a speech recognition engine receiving the modified speech signal and recognizing speech  
represented by the modified speech signal; the speech recognition engine being  
powered based on the speech detection signal.

30. (Original) The speech recognition system of claim 29 wherein the speech detector  
component is configured to receive the microphone signal and provide the speech detection  
signal based on the sensor signal and the microphone signal.

31. Canceled.

32. Canceled.

33. Canceled.

34.(Currently Amended) An audio input system, comprising:

a headset including an audio microphone, a speaker and an in-ear sensor configured to sense movement of vibration in a user's ear face and output a sensor signal indicative of the movement vibration.

35. (Original) The audio input system of claim 34 wherein the audio microphone is configured to output a microphone signal based on a received audio input.

36. (Original) The audio input system of claim 34 and further comprising:

a speech detector component configured to receive the sensor signal and output a speech detection signal indicative of whether the user is speaking or is about to speak, based on the sensor signal.

37.(Currently Amended) A speech recognition system, comprising:

a headset including an audio microphone outputting a microphone signal based on an audio input, and an in-ear speech sensor configured to sense a physical characteristic indicative of speech and output a sensor signal indicative of the sensed physical characteristic; and

a speech recognition engine recognizing speech based on the microphone signal and the sensor signal.

38. (Original) The speech recognition system of claim 37 and further comprising:

a speech detector component configured to receive the sensor signal and output a speech detection signal indicative of whether the user is speaking based on the sensor

signal.

39. (Original) The speech recognition system of claim 38 and further comprising:
  - a background speech removal component providing a modified speech signal based on the speech detection signal and the microphone signal.
40. (Original) The speech detection system of claim 39 wherein the speech recognition engine is configured to recognize speech represented by the modified speech signal.
41. Canceled.